Test Plan

Purpose:
The purpose of this test plan is to verify that the BMI program correctly calculates Body Mass Index (BMI) values based on user input and properly handles invalid inputs. Testing ensures the program produces accurate results and behaves reliably.

Testing Technology:
Python's built-in unittest framework was used to test the program. This technology was chosen because it does not require additional installation, is easy to use, and allows automated testing of program functions. It also produces clear pass/fail results that can be documented.

Test Environment:
- Programming Language: Python
- IDE: PyCharm
- Platform: Desktop computer
- Operating System: Mac

Test Cases:
Test Case 1 — Normal Weight Calculation
Description: Test BMI for typical healthy values
Input: Weight = 150 lbs, Height = 65 inches
Expected Output: BMI ≈ 24.96 (Normal weight)
Purpose: Verify correct calculation for common inputs

Test Case 2 — Underweight Calculation
Description: Test BMI for low weight
Input: Weight = 100 lbs, Height = 68 inches
Expected Output: BMI ≈ 15.2 (Underweight)
Purpose: Ensure program handles low BMI values

Test Case 3 — Obese Category
Description: Test classification for high BMI
Input: Weight = 200 lbs, Height = 64 inches
Expected Output: Category = Obese
Purpose: Verify correct category assignment

Test Case 4 — Failed Condition: Zero Height
Description: Test invalid height value
Input: Weight = 150 lbs, Height = 0 inches

Expected Output: Error indicating invalid input
Purpose: Prevent division by zero errors

Test Case 5 — Failed Condition: Negative Weight
Description: Test invalid negative weight
Input: Weight = −120 lbs, Height = 65 inches
Expected Output: Error indicating invalid input
Purpose: Ensure input validation is working